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The Confiscation of City Parks.

LESS than a year ago it was stated in these columns that a project to erect a huge municipal building in our City Hall Park had been defeated in the Legislature. The fear was expressed, however, that this check would prove to be but temporary, and already, under full sanction of law, architects have been invited to prepare plans for such a structure. In the same article it was asserted that the railroad corporation which had invaded the Battery, beautiful for situation and a priceless blessing to the thronging population about it, would never rest from efforts to extend its tracks and condemn a still larger portion of the Park to ruin; and now the Board of Aldermen have been discussing a proposition to give this company enough more of the Battery to hold a loop-track, which it is proposed to build in order to facilitate the turning of trains at the terminus of the road.

Both these schemes illustrate in a striking way the threat of annihilation which constantly hangs over every park in rapidly growing cities, where land has a high value. Nothing like a necessity exists for placing this building in the City Hall Park, for the city already owns land suitable for this purpose, and if it did not own the land it is able to buy what is needed. New York is spending a million dollars a year to tear down buildings and make breathing spaces in its densely peopled districts, and yet the desire to fill up the few open spaces that remain with piles of stone is quite as strong as ever. The Post Office now covers what was once a portion of the Park; Mr. Tweed's Court House absorbed another section. The proposed municipal building is to occupy a considerable portion of what is left, and will furnish another precedent to make the total obliteration of the old Park an easy and certain achievement. It happens, too, that the new building will destroy the beauty of the old City Hall, over which its seven stories will tower. Not only will the venerable building be dwarfed and its delicate lines and fair proportions distorted by the overgrown pile beside it, but it will be entirely shut out of sight from one direction. The projectors of this scheme are so bent upon confiscating the land that they will not be moved from their purpose even when it brings ruin upon one of the few fine examples we have of the city's earlier architecture. The destruction in this case practically involves the Park, together with the only building that has any justification for standing in the Park.

Nor can any excuse be devised for the further desolation of the Battery. The railroad managers want room, but when the loop is granted they will want it no less. They, too, can afford to buy all the land they need, but they will never have enough so long as more can be had for the asking. Every new aggression will make the next one easier, notwithstanding the protest which the border, already covered and blackened by the road, makes to everyone who passes by. The new small parks, which the city is now preparing, will not escape the same struggle, even though their first cost may be enormous. Enough money was paid for filling in that part of the Battery which the elevated roads wish to seize to buy the land for a fair-sized park in any of the tenement districts, but that cost counts for nothing.

The fact is, that the usefulness of parks is not appreciated. To very many persons they seem wasted ground. There is a passion for "improving" vacant land, and the only known way to improve it is to cover it up with some construction The time has not arrived when the people of the city realize that open spaces are quite as essential to health and comfort as solid blocks of buildings or they would never consent to see their property destroyed in this way. If a hostile fleet should anchor down the bay and begin to drop shells into the town it would cause some consternation, but the blowing up of a few million dollars' worth of buildings would be a less serious loss to the city than the obliteration of the Battery and City Hall Park, and yet these parks are doomed unless the people are educated to feel that every needless encroachment upon the park-space of the city is an invasion of their rights, a confiscation of their property and a real injury to society.

Thinning Forests.

MR. JOHN D. LYMAN, a popular writer about forestry in the press of northern New England, argues in a recent article published in the *Mirror*, of Manchester, New Hampshire, in favor of thinning the young Pine forests of that state. Mr. Lyman's arguments, like those of many other American writers upon forestry, are not based upon experiment; and in this particular case he falls back, in order to enforce his views, upon the statements of various local authorities and a number of English writers upon agriculture. Thinning a young Pine forest may or may not be a good thing to do, from a commercial point of view. There is no doubt that the trees will grow much more rapidly if they are judiciously thinned than if they are left to fight among themselves for light and nourishment. But who knows what the ratio of income will be under the two systems, or whether there is any money in helping Nature in the case of a forest of White Pines. The finest Pines which ever tossed their tops to the wind grew without any assistance from man; and man has yet to show that he can improve upon such trees. Perhaps he can, if money is not an object; but it is a serious object in the case of a crop which requires a century in which to reach maturity and which has such a low money value in comparison with the time required for its production. A rule of modern forestry, now almost universally adopted, is not to spend money on a crop for the mere purpose of hastening its maturity. Time is less important than money when the interest account is carried through so many years. Forests in Europe are rarely thinned, therefore, until the thinnings are of sufficient value to pay all the cost of the operation. Young White Pines have no value, unfortunately, until they are from twenty-five to thirty years old, and cannot be disposed of. This will be found the one disadvantage in this tree, in other respects one of the most valuable of all trees for general forest-planting.

But let us see where Mr. Lyman's thinning of the New Hampshire Pine forests, if it is carried out on any large scale, is going to lead to. It is not probable that a forest of young, self-sown Pines, which generally stand very close together, could be properly thinned for less than five dollars an acre. Compound interest at four per cent. will double this five dollars in a little less than eighteen years. In something under 150 years, when the Pine forest should have attained its maximum value, the five dollars will be $144. If the thinning is applied to a hundred thousand acres, as it might well be in New Hampshire, this operation would mean an expenditure upon the crop at the time of maturity of more than fourteen million dollars.

But who knows whether this expenditure will be justified by larger returns from the soil, or how can Mr. Lyman verify the statement he will probably make in reply to this criticism that if the young forest is properly thinned it will reach maturity in half the time that the trees, unassisted by man, would have grown to the same size. Granting that the trees of the thinned forest will be ready for the axe in seventy-five years, there will still be an interest account against them of more than forty dollars an acre, and forty dollars an acre for pine-stumpage is a very large price—larger than any one seriously believes that it will be at any time during the next seventy-five years. The danger, too, of fire and of other accidents is not diminished by thinning.

Now, we neither acknowledge nor deny the value of thinning. It may be a good thing, and it may be a very foolish one from the point of view of economy; and forestry means the economical management of forests. What is needed now in this country are facts upon which to base systems; and facts of this sort can only be reached by long years of experiments, which only governments or corporate bodies like universities can inaugurate with any hope of that they will be persisted in till sound conclusions are reached. We have had enough of the vague statements, based upon personal opinion or the results of European experiments, which pass muster in this country as profound knowledge of forestry, and the sooner we get down to practical work the better it will be for us. It requires the term spanned by the lives of several generations of men to find out anything really reliable about a tree or about a forest, and, from present appearances, ours will pretty much all have disappeared before we get ready to set about learning what is the best way to take care of them.

Great interest is felt in Minneapolis in the new park schemes for the improvement of that city; and the advocates of the plans proposed by Mr. Cleveland have succeeded in arousing so much enthusiasm about them that these plans, with some unimportant modifications, are to be realized. Mr. Cleveland, in an address presented to the members of the Board of Trade, cited the benefit derived by the people of this city from the establishment of Central Park as an argument for city parks—an argument so convincing that we reproduce it for the benefit of those persons in other cities who are trying to impress upon their fellow-citizens the necessity of securing public parks in the midst of all urban populations before the increase in the value of city land makes it impossible to do so:

"The whole expenditure," he said, "for the purchase of land, construction of park, interest on bonds and maintenance for twenty-five years was $44,000,000. The amount levied in taxes during the same period was $110,000,000 so far in excess of the average value of city property, that after deducting from it the whole cost of the park, together with all the revenue that could have accrued from taxes at the ordinary rates, there remained the sum of $17,000,000 to be credited to the park as clear profit. I wish to emphasize this statement, and have it clearly understood, for it is a matter of dollars and cents which cannot be gainsaid or evaded by those who raise the cry that we cannot afford to be sentimental. In the language of the gentleman from whose report I gather these figures, 'the most convincing arguments that can be deduced from theories are weak and impotent compared with the invaluable logic of these figures. They prove beyond the possibility of cavil the necessity of securing at once all the park lands we may ever want.'

"I tremble," continued Mr. Cleveland, "when I think that this great gift, which is put right down before us, may be lost. In the possession of this area no other city could compete with us. In Chicago they would give millions of dollars to get it, and they are now constructing a forty-mile drive at great expense, which will give them access to an area something like it."

Recent Botanical Discoveries in China.—II.

Rhododendron.—Upwards of sixty species of this genus are enumerated in the seventh part of the "Index," which is just passing through the press, and fifty of them are comparatively recent discoveries. This number is considerably in excess of the total number described in Hooker's "Flora of British India," but it may suffer some reduction when the different forms are better known; and it includes the section Azalea, which finds its maximum development in eastern Asia. A very large proportion of the true Rhododendrons were discovered by the Abbé Delavay in the mountains of Yun-Nan, but all the mountainous regions of China yet explored have yielded their peculiar species. Taken as a whole, the new Chinese species are by no means so gorgeously beautiful as the Himalayan, though many of them are highly ornamental. *R. aucubæfolium* has long, smooth, dark-green leaves and small, snow-white flowers, with very long, exserted stamens. It also resembles the common Aucula in having thick, straight, smooth branches. *R. Augustinii* is a densely-branched shrub, with crooked branches, coriaceous leaves, two to three inches long, lepidote beneath, and white or purple flowers, about the size of those of *R. Indicum*. *R. auriculatum* is a robust, large-flowered species, having large leaves, rusty-hairy beneath and slightly auricled at the base. *R. Bureaui* is another very robust species, the thick branches of which, as well as the stout petioles, under surface of the leaves and bracts, are clothed with a dense, rusty, felt-like tomentum, and the rosy or purple spotted flowers, of medium size, are borne in very crowded clusters. *R. decorum* has deflexed leaves, and is altogether so like the American *R. Catawbiense* that if it had been found in America instead of on the mountains of Yun-Nan it would probably have been referred without hesitation to that species. *R. Delavayi* is one of the showiest of the Yun-Nan species, strongly resembling the Indian *R. Campbelliæ*. *R. lacteum*, a very large-leaved species, has loosely corymbose, milk-white flowers of medium size, and the leaves are glossy above, and very thickly covered with rusty scales beneath. *R. Faberi* is one of the very few Chinese species having a large foliaceous calyx, and *R. bullatum* belongs to the same group. The former has flat coriaceous leaves, smooth above, and densely rusty-tomentose beneath. *R. stamineum* and *R. pittosporæfolium* are closely allied species or varieties of one species, characterized by smooth, deflected leaves and small, narrow-lobed white or pink flowers on long, slender pedicels, and very long exserted stamens and style.

Beaumontia brevituba.—A handsome species of the small, showy genus Beaumontia, from the island of Hainan, differing from the other species in the manner indicated in the specific name. It is, of course, a warm-house plant. The Rev. B. C. Henry, of the American mission, discovered it, and he describes it as a magnificent vine, climbing over rocks and trees; flowers white and fragrant. Hooker's *Icones Plantarum, t.* 1582.

Rehmannia glutinosa, syn. *R. Chinensis.*—A very handsome plant, is figured as variety Angulata of this species in Hooker's *Icones Plantarum, t.* 1589. It differs so materially from the plant figured in the *Botanical Register, t.* 1960, and in the *Botanical Magazine, t.* 3653, that without connecting links one would regard it as a different species. Dr. Henry collected it at Ichang, and describes the flowers as red, with orange and scarlet markings. Commonly cultivated in China, where there are many varieties, recalling in their coloring the American genus Salpiglossis.

Trapella Sinensis.—This is a highly curious floating aquatic plant, mentioned here on that account only. It is the type of a new genus of anomalous structure, referred to the *Pedalineæ*. In foliage it bears a strong likeness to Trapa, but there the resemblance ceases. The small flowers have a funnel-shaped corolla, and the narrow seed-vessels are furnished with usually three long, rigid, hooked appendages, something in the way, though very different from the appendages to the fruit of Martynia, and other members of the same order. It is figured in Hooker's *Icones Plantarum, t.* 1595, and in the *Annals of Botany*, ii., *t.* 5 to 8. A native of Ichang and other parts of China and Japan.

Rubus Henryi.—The genus Rubus is represented in China by at least fifty well-marked species, the majority belonging to the simple-leaved section, to which the present species belongs. A tall, climbing shrub, with deeply three-lobed thick leaves, glabrous above, and clothed with a white tomentum below; flowers small, red, in terminal racemes. Received from Dr. Henry, Ichang, and figured in Hooker's *Icones Plantarum, t.* 1705. Certainly one of the most distinct of the genus.

Petrocosmea Sinensis.—A new genus of the *Cyrtandreæ*, limited, so far as we know at present, to this species. An elegant little plant, in habit resembling a Violet. Dr. Henry found it growing on the surface of the rock in the bottom of a small cave near Ichang, with the leaves closely pressed against the rock. It has violet or blue flowers, and is figured in Hooker's *Icones Plantarum, t.* 1716. Several other members of the same natural order from China are figured in this work. Thus *Didissandra sesquifolia* (*t.* 1797), a remarkable species, from Mount Omei, Szechuen, with large flowers and very unequal leaves. *Hemibæa Henryi* (*t.* 1798), the type of a new genus, of which two other species are described. *Didymocarpus stenanthos* (*t.* 1799), a modest plant from Mount Omei. These plants are indeed all of them somewhat humble members of an order rich in showy plants.

Primula.—The mountains of Yun-Nan have yielded such a harvest of new species of this genus as nobody could have anticipated. It is not merely the number of new species, but the great diversity of types—among them two or three absolutely different from anything previously known. Altogether we have evidence of between forty and fifty species of Primula in China. Foremost among these novelties is *P. Delavayi*, the flowers of which are solitary on radical scapes, and appear before the long-stalked, cordate-rotundate leaves. Corolla deep purple, large, funnel-shaped, with fringed lobes. It differs from all other described species, too, in having large, flat seeds. Discovered in the mountains of Yun-Nan at an elevation of about 15,000 feet. *P. vinciflora* resembles *P. Elwesiana* from the Himalayan Mountains, and the large, solitary scapose flowers bear a striking likeness to those of a Vinca. *P. incisa*, a small-flowered, umbellate species, has small pinnate leaves on slender petioles very much like those of some of the small Potentillas. *P. nutans* has almost capitate flowers with the lilac-purple corollas directed downwards. *P. blattariformis* and *P. malvacea* are also very curious species; the former having racemes of flowers fifteen to eighteen inches long; the latter having whorled flowers with an usually large calyx. *P. bella* is a beautiful little plant, and the smallest from the Chinese region, but not so small as some of the miniature Himalayan species. Many of the others are equally as attractive as those named. Indeed, one might say that all of them are pretty.

Lindera fragrans.—An elegant shrubby Laurel from three to five feet high, with slender branches, narrow leaves and axillary clusters of small, fragrant flowers. From the neighborhood of Ishang, and figured in Hooker's *Icones Plantarum, t.* 1788.

Lonerila peperomiæfolia.—A pretty species, having fleshy, strongly-nerved, ovate, long-stalked leaves, a scapose inflorescence and loosely cymose flowers about an inch in diameter. A native of the province of Ishang figured in Hooker's *Icones Plantarum, t.* 1814.

Hemsleya Chinensis.—A new genus of *Cucurbitaceæ*, a very slender climber of elegant habit with pedately-divided leaves and dicœcious flowers. The male flowers are very singularly formed, the almost free petals being recurved on the pedicel like an umbrella or parachute. The clavate seed-vessels are borne in clusters, and open at the top by means of a small lid, giving egress to the numerous winged seeds. A native of the provinces of Hupeh and Szechuen; figured in Hooker's *Icones Plantarum, t.* 1822.

Emmenopterys Henryi.—This is an ornamental tree, thirty to forty feet high, from the Patung district in the province of Hupeh, belonging to the tribe *Cinchoneæ* of the *Rubiaceæ*—a tribe that is almost wholly American. In this, as in Mussænda, which belongs to a different tribe of the same natural order, the most conspicuous part of the inflorescence is the foliar development of one of the calyx-lobes of some of the outer flowers of the clusters, such as occurs in the South American genera, Calycophyllum, Monadelphanthus and others, and in the recently-discovered Malayan genus, Creaghia. A similar, though quite different ornamental appendage to the inflorescence, is found in the Indian genera, Hymenopogon and Hymenodictyon, belonging to the tribe *Cinchoneæ*. Here, instead of a foliar development of one of the calyx-lobes, some of the bracts of the inflorescence enlarge and color in a similar manner. The broadly funnel-shaped, almost campanulate flowers of Emmenopterys are yellow dotted and about an inch across, while the leafy expansions of the calyx are white, and persist until the fruit ripens and falls. Dr. Henry does not give particulars of the habitat of this tree, so that we are unable to judge its constitution; but in a general note relating to the plants from the Patung district, he states that most of them come from a range of mountains 6,000 to 7,000 feet above sea-level, along which virgin forest extends for many miles. Emmenopterys is figured in Hooker's *Icones Plantarum, t.* 1823.

Kew. *W. Botting Hemsley.*

Horticulture in California.

THE gardens of this State are superb this year, as the winter was very mild, warm and moist, and the fifteen Rose-fairs soon to be held in different parts of the State will be unusually interesting. The orchards look well, and the fruit crop will be twenty per cent. greater than it was last year. Only the Apricots will show a shortage, owing to the heavy rains which fell when they were in blossom. The Apricot fails to fertilize well under such conditions.

I lately visited the "Northern Citrus Belt" of this State. It is, broadly speaking, the old gold-bearing belt of the Sierra foot-hills, in which nearly all of the famous old placer camps of 1849–53 were situated. In all this region Orange seedlings of great size and vigor are to be found, but commercial plantations have been established at only a few points. The most important of these is Oroville, on the Feather River, the county seat of Butte County, and sheltered on the north by a high plain, which rises to the great pine-clad volcanic wall of Table Mountain. There are several colonies here, and some two thousand acres of young Orange-trees are already planted. In the gardens of the beautiful little town are many trees of fifteen or twenty years of age, and the orange crop is already of considerable commercial value. The town holds an annual Citrous fair, late in December, in a large tent in the court-yard pitched over a number of well-grown Orange-trees in full bearing.

There is a manifest desire here to plant more native trees and shrubs. The beautiful *Romneya Coulteri*, so long a success abroad, has been, to some extent, re-discovered by Californians. It is now in great demand, but good plants cannot be obtained at the nurseries. A gentleman of Alameda lately sent a man to the mountains of San Diego County to dig up roots, and obtained in this way a good stock for his own garden.

In new fruits the Loquat (*Mespilus Japonica*) has become fairly naturalized. One farmer in Alameda County is able to sell $100 worth of Loquats annually from two long rows planted originally for an avenue. The Loquat here presents several distinct types, one, apparently, the result of long selection, and well worth grafting. Many of the Loquats are not worth fruiting, but this better type has an undoubted future as a market fruit. The true Carob-tree is bearing here, in Alameda County. Unfortunately the trees were planted on low land, and grew too much to leaves, so that as yet the crop is but light. The Japanese Persimmons are slowly falling in public favor. For a few years producers made money shipping them, but now the large orchards planted ten years ago, when yearling trees cost a dollar apiece, are being cut down.

A curious source of revenue was brought to my notice the other day. Trees grow so fast in this climate, and there are so many old orchards, old gardens and old nurseries that good-sized trees of an immense variety of species are continually being cut down and carted to the wood-pile. A young man conceived the idea of buying up whatever woods appeared valuable and selling them to the carvers and turners in San Francisco. He knew nothing of botany, and the stuff was all sold in "mixed lots," but at high prices. In all he gathered up this winter from farms and gardens, within fifty miles of San Francisco, some seventy-five kinds of woods, none of them indigenous. One Osage Orange trunk was fourteen inches in diameter and eighteen feet long. The wood was a rich orange and brown, deepening to nearly black at the heart. A Pomegranate trunk was four inches through. An African Tamarisk, whose wood is very close-grained and creamy-white, was about the same size. A Japanese Persimmon was a foot through. The wood of this tree is light-colored, with curious black specks and stains, and works in the most charming manner. Among other woods gathered up were Ashes, Maples, Retinosporas, Auraucarias, Grevillias, Acacias, Paulownia, Cork Oak, Persian Walnut, Orange, Lemon, Large-flowered Magnolia and Olive. I notice that the wood-turners call Osage

Orange, Pomegranate and Black Locust-wood all "acacia," that the oak-like woods are all "oak," and the yellow woods all "lemon."

The Japanese Quince fruits so freely here that alert housekeepers are making jelly out of it. The product is better than either apple or the common quince jellies, and would prove very marketable if it could be obtained in sufficient quantities. At present it is rare, and highly prized by the esoteric initiates.

The prettiest spring-blooming shrub I have seen among new things is a Japanese Apricot, sent over in a lot of Japan Plums from Tokio some five years since, and fruiting only last year. The blossoms are very abundant, being fragrant, and massed as they are, and tinted slightly, but deeper in color than the common Apricot, they have attracted much attention. The fruit is small and bitter.

Berkeley, Cal. *Charles Howard Shinn.*

The Liquidambar.

THE North American Liquidambar, or Sweet Gum, as it is more familiarly called, is the type of a small genus of three or perhaps four or five species of trees peculiar to eastern North America, Mexico and Central America in the New World, and to Asia Minor and eastern Asia in the Old World. The genus belongs with the Witch Hazels and is characterized by naked flowers, usually of only one sex, produced in nodding, racemed, globular heads or catkins—the male consisting of a cluster of numerous stamens with short filaments intermixed with minute scales, the females of many two-celled and two-beaked ovaries from the axils of the minute scales, all cohering together, hardening in fruit, and forming a spherical, woody head of pods which opens between the oval-shaped beaks. The styles are two, stigmatic on the inner surface; ovules numerous, seeds few, covered with a wing-angled seed-coat.

The North American Liquidambar (*L. Styraciflua*) is one of the most beautiful and characteristic trees found in the forests of the eastern portion of the continent. It rises under exceptionally favorable conditions to a height of more than 150 feet, with a tall, perfectly straight trunk, four or sometimes five feet in diameter, destitute of branches for seventy or eighty feet, and covered with pale brown, slightly furrowed bark. The branches are small and short in proportion to the height of the tree, and the outline of the head, even upon young trees which have had abundant room for free development, is narrowly pyramidal. Broad, corkey wings grow on the young branches, and make this tree in winter a conspicuous and always striking object. The leaves are rounded, deeply five to seven-lobed, so that they appear almost star-shaped, three or four inches across; they are thin, and shining especially on the upper surface, perfectly smooth, and borne on slender petioles. They are pleasantly fragrant when bruised, and in autumn turn to the most brilliant scarlet. There are few trees of the American forest which surpass the Liquidambar in the splendor of the autumnal coloring of its foliage.

The wood of the North American Liquidambar is heavy, rather hard, tough, although not particularly strong, close grained, satiny and susceptible of a good polish. A cubic foot of the thoroughly seasoned wood weighs 36.82 pounds, or rather more than that of our common Wild Cherry and of the Black Walnut, but a good deal less than white oak. The color is bright brown faintly tinged with red, and of the sap-wood nearly white. It is difficult to season, showing a tendency to warp and shrink badly. Experience and the adoption of better methods are gradually overcoming this difficulty, however, and large quantities of this lumber are now manufactured into furniture or used in the interior finish of buildings for which, when once thoroughly seasoned, the hardness, solidity and pleasant coloring and texture adapt it. It has been used to a considerable extent in some parts of the West for the plates and even for the frames of buildings, and largely in some western cities for street pavement-blocks.

The Liquidambar first makes its appearance in Connecticut, near the shore of Long Island Sound, in the vicinity of New Haven. It is confined at first to the neighborhood of the coast, but soon extends further inland, and, with the exception of the Allegheny ridges, is found all over the United States from New Jersey and southern Indiana and Illinois to southern Florida and the valley of the Trinity River in Texas. The climate of western Texas is too dry for this tree; but it reappears on the mountains of central and southern Mexico, where it often forms an important part of the forest-growth, and extends to Guatemala and Central America, or is represented there by one or two closely related and little known species.* It is one of the most common trees of the Mississippi basin, where, on the deep, rich, and often submerged bottom-lands lining the streams, it forms, with the Cottongum (*Nyssa uniflora*) and the Cottonwood (*Populus monilifera*), a large proportion of the tree-growth. Here it attains its greatest size and best development, forming vast forests, of which an idea may be obtained from an illustration upon page 235, taken from a photograph, by Mr. Robert Ridgway, of the Smithsonian Institution, to whom this journal is indebted for the permission to reproduce it. It represents a forest scene near Mt. Carmel, in southern Illinois, and the tree with the tall, clear stem in the middle of the picture is a Liquidambar of not unusual size or height.

The American Liquidambar is destined to supply a large amount of useful timber long after more valuable trees like the Cherry, the Yellow Poplar and the Black Walnut are practically exterminated for commercial purposes. The fact that the real home of this tree in those parts of the country where it attains its greatest development is in deep swamps, always inundated every year during several weeks at a time, and incapable of being drained and therefore of being cultivated, will insure, with slight attention, its perpetuation, and will make the future supply of the wood of this tree reasonably certain.

The name Liquidambar, applied by Linnæus to this tree, has reference to the fragrant terebinthine juice which exudes from the stem. This exudation is sometimes collected by herbalists and used in the form of a syrup as a substitute for storax in the treatment of catarrhal troubles, or externally as an ointment. This resinous exudation increases in proportion to the warmth of the climate in which the tree is found. It is almost wanting in trees growing at the northern limit of the species, and is produced in much larger quantities from trees in Mexico and Central America than from those growing in any part of the United States.

The American Liquidambar is a tree of first-rate importance in ornamental planting. It is easily raised from seed; it can be transplanted without difficulty; it grows rapidly, and is not particular about soil. A single specimen upon a lawn is always a handsome object, and the narrow, pyramidal shape of the head adapts it for general street-planting. The leafless branches afford a curious and interesting sight, and the splendor of its autumnal foliage places it in the front rank of trees to plant for autumn effects. It is not, unfortunately, perfectly hardy in eastern New England, suffering here in severe winters.

Liquidambar Orientalis, Mill., furnishes the liquid storax of commerce. This tree forms forests of considerable extent in the south-western part of Asia Minor. It is described as a handsome tree thirty or forty feet high, resembling the Plane.† A detailed and very interesting account of the history, properties and uses of liquid storax and of the methods used by the wandering tribes of Turcomans for extracting it from the trees will be found in Flückinger and Hanbury's "Pharmacographia," p. 241. It is a remarkable fact (although not at all an isolated one, for there is still much to be learned of the plants from which eastern nations

* Henesley, *Bot. Am. Cent.*, i., 400.

† There is a good figure of this species in Hooker's *Icones*, *t.* 1019.

derive many of their most valuable products) that the real source of liquid storax, which is known to have been sent to India from the ports of the Red Sea as early as the first century of the Christian era, and was known in Greece during the sixth or seventh centuries, was not found out until a few years ago.

The origin of this drug long perplexed pharmacologists, and the first account of it was published in a Greek newspaper in 1841, and only definitely settled in 1851.‡ The chief market for this drug is still, as it always has been, India, and considerable quantities are consumed in China also.

New or Little Known Plants.

Cordia Greggii, var. Palmeri.*

THIS is another of the showy flowering shrubs discovered last year by Dr. Palmer in the mountains about Guaymas. In its general habit and more important characters it accords with the species to which it is referred as a variety, which is a native of the Sierra Madre region farther to the east, where it was first collected many years ago by Dr. Gregg. This variety differs mainly in its larger and broader flowers, the other differences in foliage, etc., being less conspicuous.

Fig. 106.—Cordia Greggii, var. Palmeri.

It is a much-branched and rather compact shrub, growing to a height of five to eight feet, with numerous small pubescent and light green leaves, strongly veined and sharply toothed. It is a very free bloomer, bearing the flowers in clusters at the ends of the branches, broadly funnel-form, pure white and fragrant. The fruit is somewhat fleshy, enclosed within the dilated calyx-tube, and contains a very hard 1-4-seeded stone. In the size and beauty of its flowers this species equals the *Cordia Sebestena* and others of the same group. *S. W.*

* CORDIA GREGGII, TORT., var. PALMERI, Watson in *Proc. Amer. Acad.*, XXIV. 61.

The Asiatic species of Liquidambar (*L. Formosana*, Hance) is found in southern and eastern China, in the Island of Formosa, and in Japan.§ It is the Feng-tree of the Chinese, and it has quite recently been discovered that the wood of this tree is very generally used in making the cases in which Chinese tea is exported. Mr. Hemsley finds another Chinese species in Herb. Kew, of which little is yet known (*Journal Linnæan Society*, of London, xxiii, 297). Its wood is also used for tea-chests. *C. S. S.*

‡ See *Pharmaceutical Journal*, xvi. 41, 461. There is a figure of this species in Hooker's *Icones*, *t.* 1026.

§ *Liquidambar Chinensis* (see Hooker's *Kew Journal of Botany*, iv. 164) is now referred to the genus Altingia, of which the type is *Altingia excelsa*, Noronha (*Liquidambar Altingia* of Blume), a widely-distributed tree from east Bengal to China and the Malayan Islands.

Cultural Department.

Boronias.

THERE are about fifty species of Boronia, all of which are peculiar to Australia. Of this number nearly one-half have been cultivated at one time or another as green-house flowering-plants, but only a few of them are represented in gardens now. The introduction of *B. elatior*, *B. megastigma* and *B. heterophylla* within the last ten years or so has been the means of attracting attention to the older and almost forgotten species, which twenty years ago ranked among the choicest flowering-plants for the conservatory and for exhibition. The best of these are comprised in the list which follows. There can be no question as to the first-rate merits of Boronias as garden-plants, even in these days when there is so much to select from. They form shapely bushes under ordinary treatment, they bloom freely and last a long time, the flowers are pretty and generally very fragrant, and they have the additional attraction of distinctness. A specimen Boronia is unlike any other green-house flowering-plant. Its nearest relations, the Croweas, Eriostemons and Correas, are as different in appearance from Boronia as they are from each other. There is a good opportunity for any horticulturist on the lookout for an interesting and useful hobby in these neglected hard-wooded green-house plants from the Cape and from Australia. In the more southern states of America these plants would probably prove hardy and would thrive well. The Boronias are most abundant in West Australia from the Swan River southward. Here the hottest months are December, January and February, when the maximum temperature reaches 100° Fahr., the coldest months being July and August, when the thermometer falls to freezing-point. Undulating plains, covered with a profusion of vegetation, and a sandy soil, characterize this region. Springs abound, water being found at only a few feet from the surface, even in the hottest and driest weather, so that the plants are able to support long seasons of drought. These facts may be of some guidance to those readers who are situated in California and other southern states.

As green-house plants for temperatures approximating to those of England, Boronias should be treated as follows: Young plants may be obtained from imported seeds, from cuttings or by grafting. Some growers prefer grafted plants. Others, who are equally successful, prefer them on their own roots. If grafted the best stock is *B. pinnata*, which should be about two years old, with the base of the stem slightly woody. Splice-grafting is usually preferred. The cion should be about one and a half inches long, and firm enough to cut easily. The operation should be performed in February. Cuttings may be put in at the same time or in autumn. They should be obtained from the lowest and least sappy branches, planted in a very sandy peat-soil, covered with a bell-glass and placed in an intermediate temperature. When rooted and hardened off they may be transferred singly into thumb-pots and placed on a sunny shelf in a green-house. The soil should always be good peat, with a good proportion of coarse silver sand. Re-pot as often as necessary, bearing in mind that small shifts are best and that these plants do not require much root-room. The shoots must be stopped often, so as to get a good foundation for a well-furnished bush. *B. megastigma* requires constant attention in this respect, or it will run up into a thin, scraggy specimen. *B. elatior* and *B. heterophylla* may be cut back hard after they have flowered, and they will make all the better plants for it. A green-house where the temperature does not fall below 45° in winter, and where a constant supply of fresh air and light can be maintained is the most suitable place for Boronias. Re-pot large plants in March, and after they have been started in a close, sunny green-house let them have plenty of light and air, with a moist atmosphere in the evening and morning. In August all except *B. serrulata* may be placed out-of-doors to ripen their growth; this species, however, will not bear this exposure, but must be kept in the green-house always. It also likes a few degrees more warmth in winter. Under this treatment perfect specimens almost as high as a man have been grown in England.

The following species are the best of those known. They are all in cultivation in a few collections in England, whilst the most popular may be had of any nurseryman.

B. heterophylla, although the last to be introduced, is by far the handsomest of all known Boronias. As is now known to most of your readers, it was sent to Kew in 1881 by Miss North, the famous artist and traveler, and it has since been distributed by Messrs. Veitch, of Chelsea. It forms an elegant little shrub with numerous branches clothed with dark-green, pinnate leaves, which vary in the number of pinnæ, and are sometimes simple. The flowers are in axillary whorls, and are egg-shaped, drooping, half an inch long, the color being bright rosy-red, almost crimson. It differs from *B. elatior* in having larger leaves, fewer leaflets and brighter-colored, larger flowers. According to Baron von Mueller, who described it nearly thirty years ago, it is found "in West Australia, on the Kalgee River, in places sometimes inundated."

B. elatior was introduced by Messrs. Veitch in 1876. In habit it resembles *B. heterophylla*. The branches are hirsute, the leaves crowded, pinnate, two inches long, and the flowers on short axillary peduncles; they are nearly globose, open at the apex, nearly one-half inch long, very profuse on the branches, and dull rose-red. They are developed in spring and early summer. When well managed—and it is one of the easiest to cultivate—this species forms a bush four feet high, with hundreds of branches clothed with six inches of flowers. As a small pot-plant it is equally beautiful.

B. megastigma is not attractive in color, but what it lacks in that respect is more than atoned for by its powerful and delicious fragrance, as sweet as violets and even more penetrating. One small plant in flower is sufficient to scent the air of a large green-house. It is slender in habit, with thin branches, heath-like foliage and axillary flowers. These are formed of four spreading concave petals, which are purple-brown on the under side; yellow above. The stigma is four-lobed, large, truncate at the top, and purple; the stamens are in two series, one bearing large purple anthers, the other small yellow ones. This plant is scarcely ever out of flower. It is a native of King George's Sound, from whence it was introduced and flowered first in Kew.

B. pinnata is a free-growing, free-flowering, handsome shrub only surpassed in beauty by *B. heterophylla*. It has pinnate, smooth leaves, with from five to nine leaflets, and rather large axillary or sub-terminal corymbose flowers. The petals are one-half inch long, spreading and overlapping, fleshy, pale rosy-purple in color. They remain on the plant a long time. This species will continue in bloom from November till the following May. Twenty years ago it was one of the most popular of all flowering-plants for exhibiting. It has been in cultivation many years, and is a common plant in New South Wales and Victoria.

B. titrandra is very similar to *B. pinnata*, but differs in having smaller flowers. It blooms in April and May, and lasts about two months. The flowers are colored bright rosy-pink. Syn. *B. Drummondii* and *B. pulchella*.

B. Fraseri is a compact shrub three feet high, with green, pinnate, shining leaves and axillary corymbs of from four to six deep rose-red flowers on short peduncles. The corolla is one-third of an inch across and composed of four ovate spreading petals, which are downy on both sides. The stamens are fleshy and white. When well managed the whole of the upper six inches or so of the branches is heavily laden with flowers. They are developed in spring. Introduced from New South Wales about thirty years ago. Syn. *B. anemonifolia*.

B. crenulata is a distinct and pretty plant with fragrant flowers. The branches are slender, semi-erect and clothed with box-like leaves one-fourth inch long, obovate, overlapping each other and pointing upwards. The flowers are borne on axillary peduncles about the top of the branches, and are bright rosy-red. They measure one-half inch across.

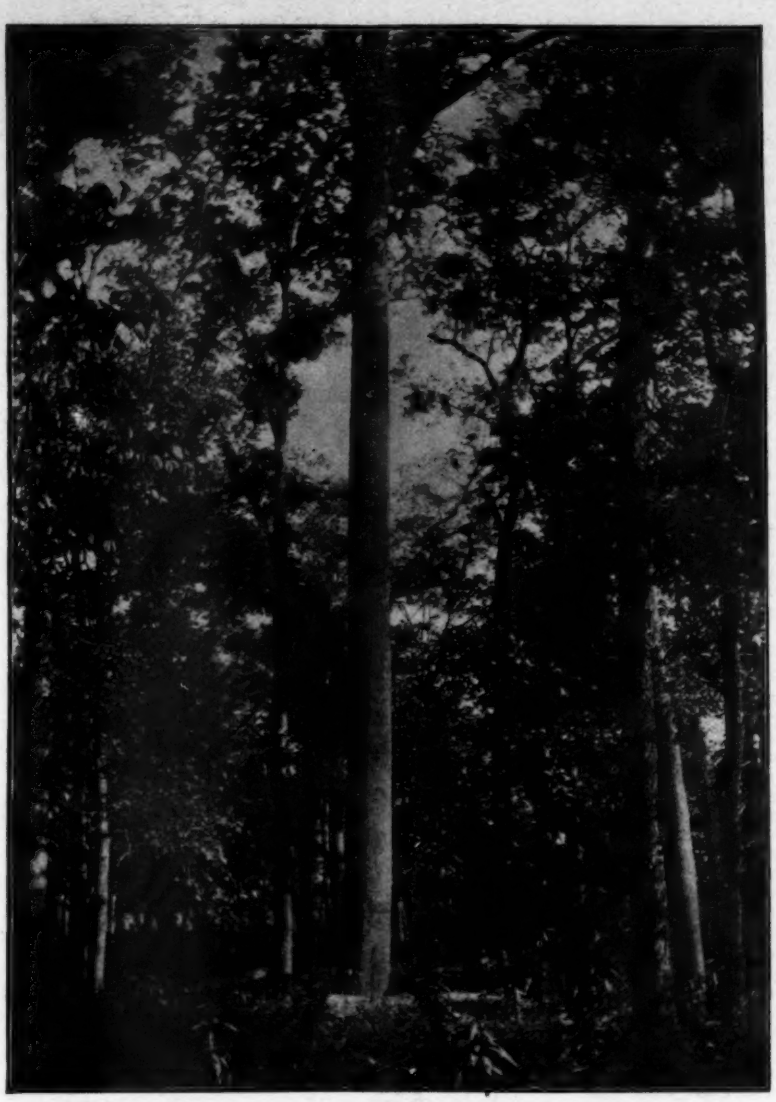
B. serrulata is much like the last-named, but is a more robust grower; the flowers are larger, darker and more fragrant. It is a native of New South Wales, where it is known as "the native Rose," probably on account of its odor, which resembles attar of roses. The two species last mentioned are almost unknown in English collections now. They certainly are more difficult to manage than the other kinds described here, but under favorable conditions they form attractive, pretty specimens.

W. Watson.

Kew.

Lima Beans.

THE Lima Bean is one of those vegetables which I have found to do better by having a permanent location in the garden than in rotation with other crops. It requires a richer soil than the ordinary dwarf Bean, and will pay well for special attention. Most growers use poles for these Beans which are entirely too tall. The crop is harder to secure from the tall poles, and the extra height is an absolute disadvantage since it encourages the upward growth of the vine and retards its fruiting. If poles are used at all, a height of five feet is enough. Before setting the poles run furrows with a plow where the rows are to be. In these furrows place the manure



A Liquidambar in Southern Illinois—See page 232.

or commercial fertilizer, then with a crowbar set the poles firmly in the furrow four feet apart. Next throw a furrow to the row of poles from each side, leaving them standing in a ridge. Now, with a rake, dress this bed of earth into good shape, and around each pole plant four beans, eye downwards, and only just beneath the surface. The elevated ridge around the poles will heat up sooner than a flat surface, and the germination will be much more rapid. When the plants are fairly established pull up all but two to each pole, and give a little attention to starting the vines on the poles, as they frequently need to be tied at the beginning. But the best way is not to use poles at all. Set two or three stout posts in the line where the Beans are to grow, and then stretch galvanized wire-netting, four feet wide, from post to post, and plant the Beans along the ridge about six or eight inches apart. The wire will furnish points to cling to from the start, and the Bean plantation will look much better than with the poles.

Perhaps the Lima Bean will in time be able to support itself. The new Bush Lima furnishes a starting point for a dwarf variety to take the place of the old Lima. The Bush Lima, though a good thing, is, nevertheless, the smallest of all Limas, and cannot yet entirely supersede the old large Lima. But having secured the habit it will not be long before we have the big bean on the small bush. As grown here last summer the Bush Lima, or Bush Sieva, was fully two weeks or more earlier than the pole Sieva, and more than that in advance of the large Lima. It will thus be of great advantage in localities too far north for the large Lima. But even if we succeed in putting the large bean on the small bush, it is hardly probable that we can put so many there nor keep up the succession as late as on the running vines. Therefore we had probably better not dispose of our poles or wire-netting. In fact, by the use of this netting it becomes easy to grow many desirable Beans which the pole nuisance has almost banished from our gardens.

Crozet, Va. *W. F. Massey.*

Orchid Notes.

Dendrobium ochreatum (*Cambridgeanum*) is one of the showiest Orchids in bloom with us at present. Unfortunately it is not flowering freely, and is seldom seen in perfection. It is one of the few Dendrobiums that produce flowers on the young, immature bulbs—a great advantage, since the deep green leaves form a fine background to the rich golden flowers. These are produced in pairs from the sides of the bulbs, and are some two inches across, the roundish lip ornamented by a large crimson blotch. The bulbs are about a foot long, with the nodes somewhat thickened. This handsome plant was introduced in 1837 from the Khasya Hills, where it grows on trees and rocks. Under cultivation it thrives in small baskets of peat and moss suspended near the glass. During active growth it needs abundant heat and water, and after flowering should be placed in a cool, airy house thoroughly to mature the bulbs.

Dendrobium McCarthiæ is a large-flowered kind, very pretty and rare, found on forest trees in the southern part of the Island of Ceylon. It produces slender bulbs about two feet long, with swollen, dark-colored nodes. The flowers are borne in twos or threes on pendulous racemes from near the top of the stem. In form they are peculiarly flattened, with a sort of spur at the base, the color being white, streaked and suffused with rosy mauve. The lip has a large, rosy-purple blotch in the centre, and is edged with rose. This fine plant is usually difficult to keep in good condition, or even alive. With us it is doing fairly well in the warmest corner of the Phalænopsis-house, growing in small, shallow pans, drenched with water during growth and kept a little dryer while flowering.

Dendrobium fimbriatum is an old and showy species that may now be seen in full beauty in a great many collections. It is a strong plant with stout bulbs four feet long, thickened in the middle and tapering to the top. The flowers are borne in loose racemes from near the top of the bulbs, which continue to bear them for many years. They are of a bright orange color, the large, roundish lip being beautifully fimbriated. This plant was introduced from the Himalayas in 1820, and grows freely in good open soil among a general collection of stove plants. A very pretty variety called Oculatum (*Paxtonii*) differs from the type in having shorter and more slender bulbs, and the flowers are ornamented with a large maroon blotch on the lip.

Bletia Shepherdii is one of the best of this genus of terrestrial Orchids. It is a very robust grower with round, flattened bulbs, surmounted by lanceolate plaited leaves about two feet long. The scapes are branching, two to three feet long and bear an abundance of reddish-purple flowers prettily marked with creamy-white streaks on the lip. It comes from Jamaica, and is easily cultivated in pots of sandy peat with a little rich loam added. It should be treated as an ordinary stove plant, and needs a good rest after growth is finished.

Ærides Fieldingii is a magnificent plant of bold habit growing nearly three feet high, the stem closely clasped with thick, dark-green leaves about one foot long. From the axils of these are borne drooping racemes, often branched and two to three feet long, thickly set with large white flowers, mottled

and suffused with a rich rose color that becomes much deeper on the lip. It is a native of Assam, and thrives in baskets or cylinders with Sphagnum moss in the warmest house, and should at no time be allowed to become dry. Of several varieties of this species the rarest is called *Williamsii*, a pure white form.

Cyrtopodium Andersonii is a noble plant, and one not often seen. It is only suitable for large houses, as it grows nearly five feet high. The bulbs are sheathed with the bases of the large lanceolate plaited leaves. The stout scapes which appear with the young growths are about five feet long, branching and bearing numerous rich golden flowers. It comes from the West Indies, and should be grown in very rich, loamy soil, kept open by nodules of charcoal. Steady heat, abundance of water and liberal applications of liquid manure will tend to make strong growths, and when these are mature the plant should be removed to a cool, airy house and kept dry until the flower-scapes appear. The bulbs should not be shrivelled.

Cattleya citrina is now in full flower, and the golden-yellow, tulip-like flowers hanging from among the glaucous foliage and whitish bulbs, with the peculiar drooping habit of the plant, combine to give it a striking appearance. This Orchid has been known a great many years, and is abundant in Mexico, where it grows on the under side of the branches of the trees. In cultivation it does not remain in good condition for many years, but newly imported plants grow very freely, and with us last longest in good condition if wired to bare blocks of wood and suspended near the glass in the Heath-house. They should be drenched with water during growth, and merely kept plump at other times. The flowers are deliciously fragrant, and will last fully a month in perfection.

Kenwood, N. Y. *F. Goldring.*

Trilliums.—Wood-Lilies, or Wake Robins, as they are often called, are among the best of our native spring-flowering plants. Many of the species are valuable for pot culture, and when grown in this way may be easily brought into bloom several weeks before their usual flowering period. To grow Trilliums well a moist, shady place and rich vegetable mould are necessary, for when found growing wild they are usually in shady woods, where the decaying vegetable matter affords abundance of rich soil for them to luxuriate in year after year. *T. grandiflorum* is probably the best-known species, and deservedly so on account of its large flowers, snow-white when first expanded, and changing to rosy-pink with age. A quantity of this Trillium growing wild, and just in bloom, is a sight to see and remember. If visited a week or two later the appearance of the flowers is so completely changed that the place will hardly be recognized. *T. ovatum* is a Pacific Coast species and is as ornamental as *T. grandiflorum*, the flowers being pure white and fully as large. These two species are often confounded, but on examination are seen to be quite distinct in the shape of the petals and stigma. *T. erectum* is a species common in the Eastern States, having green leaves with dark purple flowers. A white variety is also quite common, with yellowish-white petals and purple ovary, a very distinct plant, known as *T. erectum album.* Another eastern species is *T. cernuum*, or Nodding Trillium. This also is white-flowered. *T. sessile* is a species with purple flowers and foliage prettily blotched with purple. The variety *T. sessile Californicum* is a plant larger in all its parts and with the coloring of leaves and flowers of a much brighter color. This is a very desirable plant, and worth cultivating for its foliage alone. *T. nivale* and *T. pusillum* are two dwarf species not exceeding six inches in height, both having white flowers. *T. petiolatum* is very distinct in its foliage, which differs from all others in being heart-shaped and borne on long petioles. All of these Trilliums are of easy cultivation when given the position named, and a little trouble taken to make the plants feel comfortable will be amply rewarded. The best time to plant Trilliums is as soon as possible after the foliage has died down in summer or early in the fall.

Dicentra eximia.—We received some two years ago a plant of the true *Dicentra eximia* from a correspondent in Tennessee, and after growing it for two seasons we find that it may be strongly recommended as a hardy border-plant. The flowers are borne in compound racemes on stems about a foot high, and are produced simultaneously with the beautiful, finely-cut foliage, which starts in April and continues until autumn frosts. As a border-plant *D. eximia* is as ornamental as the old *D. spectabilis* or Bleeding Heart, and is much to be preferred on account of its being persistent. *D. spectabilis* dies down during the hot summer months. We have found *D. eximia* to be easily propagated by division and also by seed, which is ripened in fall. The plant is perfectly hardy near New York.

Passaic, N. J. *E. O. Orpet.*

Summer Flowering Bulbs can be used with advantage to fill vacancies in the herbaceous borders and open spaces amongst dwarf shrubs, such as Ghent Azaleas and Kalmias, when grown in beds or borders by themselves. The commoner varieties of *Gladiolus brenchleyensis* are often used for lines in formal borders, and planted so have a very telling effect. The rarer hybrids may be planted in dozens or half dozens, at intervals, in a border and are equally effective. Other bulbs which can be used in groups are *Crocosmia aurea*, orange; *Montbretia crocosmiæflora*, orange-vermilion; *M. Pottsii*, red; *Galtonia candicans*, the large white summer Hyacinth, and scarlet and orange Tigridias. Dwarfer and rarer sorts for the rock-garden are *Milla biflora*, with pure white flowers; *Cooperia pedunculata* with fine white fragrant flowers; *Zephyranthes Atamasco*, *Z. candida* and *Z. rosea.* *T. D. Hatfield.*

Wellesley, Mass.

Pontederia azurea.—A tropical aquatic has just flowered with me, and I think for the first time in the United States. It is distinct from and finer than the now popular *P. crassipes*, and will undoubtedly flourish in the open air in summer. After trial in this manner I will report further.

Bordentown, N. J. *E. D. Sturtevant.*

Notes from a Spring-Garden.

Anemone Appenina is a delicate bulbous-rooted species of southern Europe, with doubly pinnate leaves, the leaflets thin and drooping and erect one-flowered scapes a few inches high. The flowers are pale china-blue an inch or an inch and a half across, delicate and rather fugacious. They appear in succession, however, and the plants, of which there is a broad and spreading clump in the shadiest part of the rock-garden, have been in flower for several days. This is a shade-loving plant, and flourishes best and lasts longest in flower when it is planted under trees.

In the depth and intensity of the blue color of its flowers no plant, perhaps, certainly no plant which can be cultivated in our gardens, surpasses or equals *Omphalodes verna*, a dwarf perennial a few inches high, of the Borage family, from southern Europe, common in English gardens, but not very often seen in those of this country, where it is rather difficult to establish and not long-lived, perhaps, because it is not very hardy here at the north. Once established, however, this charming plant spreads rapidly by rooting runners, and as it remains in bloom during several weeks, and as the color of the flowers is so wonderfully fine, it is worth a little extra trouble and patience to secure a good mass of it on one of the half-shaded slopes of the rock-garden or in some sheltered nook by a wood-walk under deciduous trees.

The yellow-flowered *Fritillaria imperialis* is at its best—a stately and splendid plant, and one which, in spite of its mephitic tendencies, causes as much admiration as any plant in the garden. It quite eclipses the old-fashioned, dull-colored Crown Imperial in habit, in brightness of foliage and in beauty of flowers. The Crown Imperial has held its own in gardens for centuries, and has seen the coming and the going of plants and of races of plants long since forgotten. It has survived many fashions, and, thanks to its tenacity of life and its real beauty, it seems destined to survive many others. This yellow-flowered variety should serve to extend its popularity and make it known among people who value plants largely because they are new or little known; not that the yellow-flowered Crown Imperial is a particularly new plant, or one that is difficult to procure, for it is sold by many of the bulb-growers of Holland, and the bulbs cost only a few cents apiece, but it is little known, and therefore rare in the gardens of this country. And this is true of another plant of this same genus—*Fritillaria pallidiflora*, a native of southern Siberia. This is a smaller plant, rarely attaining a height of ten inches, with very pale glaucous-blue leaves arranged along the stem, which bears at its summit three or four large, nodding, bell-shaped flowers, pale yellow in color, and striped and spotted on the inside with deep purple. It is hardy and long-lived, and for many years has flowered undisturbed in the same spot, which is one of the most exposed and dryest in the whole rock-garden. It is truly a perennial source of pleasure.

And so is the Summer Snowflake (*Leucoium æstivum*), and I never look or think of it without wondering why it is that I never see it in other gardens, or why everyone who has a bit of ground and loves flowers does not plant a few bulbs of this plant. Its long, dark green, erect leaves, its

tall, bold scape and the cluster of white, bell-shaped, nodding flowers, which do not appear until the early-flowering bulbous plants have passed their blooming, all commend it to the lovers of hardy flowers, among which there is none, I think, which equals it in grace of carriage and in a certain charm of dignity, if such a word can be applied to a humble herb, which barely raises its head two feet above the ground, and whose annual appearance barely covers a quarter of the year.

Viola pubescens and *V. Canadensis* are both just now conspicuous objects in the rock-garden, as they have spread widely from self-sown seed, and the young plants are blooming freely. They are both native species, the former with yellow, the latter with larger white flowers, tinged with purple; and they are both easily cultivated, and improve both in size of plant and of flower under generous treatment. The Canadian Violet especially is an admirable garden plant, with its tall, leafy stems, which are sometimes two feet high, and its large and abundant flowers. It thrives, too, in the densest shade, a valuable quality in almost any plant; and it will flourish almost as well in an open situation in the full glare of the sun. There are several other of our wild flowers blooming here just now. Some of the showiest and some of the most graceful plants which are cultivated in gardens are found in the New England woods and fields, and there are no plants, when they are transferred to a New England garden, which give greater pleasure or cause greater admiration among persons who are not botanists and whose knowledge of flowers does not extend beyond the ordinary inhabitants of the conventional gardens of the present day.

The Wake Robbin (*Trillium grandiflorum*) is the showiest in flower of these plants now blooming here. It is an excellent garden plant, and if people who plant it are sometimes disappointed in the result at first, it is only because this Trillium requires three or four years in which to get fairly at home in its new quarters; but when it is once established it will produce larger flowers than it produces in the woods, and spread and multiply and flourish wonderfully.

Uvularia grandiflora is another inhabitant of northern woods; a graceful and attractive shade-loving plant, which is at its best just now. The common name of Bellwort is derived from the slender, bright yellow, Lily-like flowers, which nod two or three together from the summit of the slender, leafy stems. No plant is more easily cultivated, and once established it spreads rapidly, and will occupy all the space which can be afforded to it.

Boston, May 4th. C.

Notes from the Arnold Arboretum.

THE season is one of promise. It is still early, and plants are flowering eight to ten days before they did last year. Few plants have suffered during the winter, and nearly all those which bloom upon the wood of the preceding season—that is, in early spring—are unusually full of flowers or of flower-buds.

The different species of Prunus are, of course, next to the Asiatic Magnolias, the most conspicuous of the small trees and shrubs which flower here in April. *Prunus Davidiana*, from northern China and Mongolia, was, as last year, the first to open its pale pink and rather small flowers, but it preceded by two or three days only the Sweet Almond (*Prunus Amygdalus* or the *Amygdalus communis dulcis* of many authors). The Sweet Almond is one of the familiar plants of European gardens and shrubberies, but for some reason or other is rarely seen in those of this country—at least in the Northern States. It is perfectly hardy, nevertheless, although, like most of the Almonds, Peaches and Apricots, often short-lived here, owing to the attacks of bores or of fungus. An Almond-tree in full flower is a beautiful object. The flowers are rather larger than those of the common Peach, or almost two inches across. The petals are pink, shaded towards the base to rose, while the calyx is purple. They appeared here on the 18th of April, and the trees are still covered with bloom, although many petals have, of course, fallen. These flowers have experienced during the past two weeks excessive summer heat, sharp frosts, violent thunder-showers and two prolonged north-easterly rain-storms. There are few flowers which can bear so much hard treatment and look fresh and bright at the end of three weeks.

The Almond is a native probably of Mesopotamia, Persia and the Trans-Caucasian countries, but it was early introduced into Europe by the Greeks, and has now become fairly naturalized in the countries of southern Europe and in Algeria. It is a tree twenty to thirty feet in height, with a spreading head of rather sparse, upright branches, and it is only when the tree is in flower that it is an object of great beauty, as it is not remarkable in its foliage or in its habit or general appearance, which are not very unlike those of the common Peach-tree. The earliness and lasting qualities of the flowers, their large size, abundance and individual beauty are what make the Almond such a desirable tree for the garden. There are several varieties of the Almond in cultivation, but the variations are principally in the fruit. They are largely cultivated in southern Europe, especially in Portugal, and in the Orient, and recently somewhat in California, where the climate is well suited for this tree. The varieties with sweet and with bitter fruits were distinguished, according to A. De Candolle, by the Greeks and even by the Hebrews.

The plants found in nurseries are usually worked as tall standards upon Plum stocks, as the Almond is found to grow more vigorously and to last longer worked on the Plum than when it is grown on its own roots. The variety with sweet, hard-shelled fruit (*Douce à coque dure*) is much used in France as stock upon which to work the Peach, which is found, when treated in this way, more prolific in dry soils. According to Charles Downing ("The Fruits and Fruit-Trees of America") "the common Almond, the hard-shell Sweet Almond and the Bitter Almond are hardy in the latitude of New York, and will bear tolerable crops without care. The soft-shell Sweet Almond, or Ladies' Almond, will not thrive well in the open garden, as a standard, north of Philadelphia; but they succeed well trained to a wall or on espalier rails in a warm situation, the branches being slightly protected in winter."

It is well to record, perhaps, that the flower-buds of the Siberian Apricot (a wild form of *Prunus Armeniaca*, a common and widely-distributed tree through Siberia to northern China and Manchuria) were killed during the past year. It is a handsome, vigorous and perfectly hardy tree here, of rapid growth, but it has never flowered freely or set fruit, and this is the first time that the flower-buds have been killed.

The Japanese *Prunus pendula*, of which an illustration was published in the first volume of Garden and Forest, p. 196, flowered two weeks earlier than it did a year ago, but as usual the plants have been covered with flowers. It is certainly one of the most graceful of all small trees, and one of the freest and most constant bloomers. There is no tree of northern gardens with which it can be compared, and none when its pale pink, nodding flowers cover the long, drooping branches which possess its delicate refinement and peculiar charm. Fortunately it is hardy and a rapid grower, flowering early, and it is easy to multiply by grafting upon the common Cherry-tree, so that there is really no reason why this little tree should not be seen wherever gardens are cultivated or beautiful plants esteemed. And yet, strange to say, it is hardly known yet in European nurseries, while in this country, although a few plants have been cultivated for nearly twenty years, it is rarely seen outside perhaps a dozen gardens.

A variety of the cultivated Peach raised from seed sent to the Arboretum by Dr. Bretschneider from Pekin, is now conspicuous with exceptionally large, abundant and deep-colored flowers. It has some value as an ornamental tree.

It is a curious fact, and one not very easily explained, that the Myrobalan Plum is so rarely seen in our gardens, although now that the purple-leaved Persian variety, the so-called *Prunus Pissardi*, has been so generally propagated, we are going to see more of it in one form at least. The green-leaved plant is far the handsomer of the two, however, when the trees are in bloom, and it is, moreover, one of the handsomest of the Plums at this season of the year, as the leaves, which are about half grown when the flowers are fully expanded, make a charming and effective setting for them, and afford what most "fruit-trees" lack in flower—a contrast of colors. The Myrobalan is a small tree of good habit. It is perfectly hardy, not particular about soil or exposure, and one of the freest bloomers of the genus. It is one of the plants which has most puzzled botanists, as although it has been in cultivation for centuries it is nowhere known in a wild state. It is probably a variety or form of the common Plum (*P. domestica*). The fruit is small, depressed-globular, scarlet or yellow, and of little value except for the handsome appearance which it presents as it hangs upon the branches. The Myrobalan is one of the best of the early-flowering trees to plant in a small garden or on a small lawn. Judged by the plants grown in the Arboretum, it is longer lived and less liable to be injured by borers than the purple-leaved *Prunus Pissardi*.

Prunus tomentosa is in full bloom, and as usual, an object of much beauty. It is a native of northern China, whence long ago it was carried to the gardens of Japan, where it is generally cultivated and highly esteemed. This little Cherry is a

spreading bush, growing three or four feet high by as much through. The stems are long and wand-like, and are now covered from end to end with pale pink flowers the size of those of a common Cherry-tree, which appear just as the young leaves, which are thickly clothed with tomentum (a peculiarity of this species), are unfolding. The flowers remain open during several days, and are succeeded by bright scarlet, almost transparent fruit, which is ripe here during the month of July. This is a very hardy shrub. It is easily raised from seed or from cuttings, and when it is better known its value will be appreciated, and it will be seen wherever shrubs are cultivated for ornament.

Amelanchier oligocarpa was first figured in Garden and Forest, i., p. 247. It has been in flower in the Arboretum for a week, and is the earliest of the genus, and a shrub of great beauty in cultivation. A native of cold, northern bogs only, it takes kindly to cultivation, which soon increases its stature and the size and abundance of the flowers, which are the size of a shilling, with broad, obovate, pure white petals. They are borne on long peduncles along the entire length of the stems, and are not fully open until the young leaves, which are bright bronze-green, are more than half grown. The pure white flowers in their setting of deep-colored leaves, the compact habit and general appearance of thrift and vigor which the plant displays in cultivation all commend it. It is one of the native shrubs unknown or entirely neglected by cultivators which the Arboretum is gradually calling attention to. The flowers of *Ribes saxatile*, the first of the genus to open, now cover the plants. They are yellow, produced in short, erect racemes, and make an agreeable appearance in contrast with the somewhat darker yellow of the foliage. This plant is a native of Siberia, long known to botanists and in gardens, in which it deserves a place, both for its pretty flowers and because of all the shrubs cultivated in the Arboretum it is the earliest to cover itself with leaves.

Of the shrubs, however, which flower here in New-England during the last days of April, there are none which can be compared with the Forsythias for splendor of bloom, or with *Spiræa Thunbergii* for a profusion of pure white flowers. There are three Forsythias in cultivation—the old *F. viridissima*, a poor plant, comparatively, blooming fully a week later than the others, and with smaller and paler flowers, more erect branches, and less graceful habit. The others are *F. suspensa* and *F. Fortunei*, the latter a more upright growing variety of *F. suspensa*, with rather larger flowers, and by far the handsomest and most desirable of the three. It is hopeless to undertake a description of a large plant of this variety—ten or twelve feet high by as many through, with long, graceful, arching stems; a mass of brilliant yellow bells flashing in the sunlight, as I write—or to imagine how any other plant of its size can be more beautiful or give such an idea of marvelous profusion of flowers. There is some confusion in gardens in this country about the different species and varieties of Forsythias, and drawings have been prepared here to show the difference in the flowers and fruit, for publication in a later number of Garden and Forest.

Spiræa Thunbergii is handsome from the middle of April until the middle of November. It blooms profusely; the flowers, although individually small, cover the plant; the foliage is particularly graceful; the habit of the plant is good, and it is almost the very last in the autumn to change the coloring of its leaves, which, when most deciduous trees and shrubs are leafless, are brilliant with orange and scarlet tints.

Cercidiphyllum Japonicum is one of the introductions of the Arboretum which, although little is really known with regard to it yet, is a tree of so much promise that it may not be out of place to call attention to it. Cercidiphyllum is a Japanese genus of two species which is now considered to be more connected with the Magnolia family than with any other. *C. Japonicum* is a large timber tree in its native country, and, judging by the rapidity of its growth here, it promises to become a tree of considerable size in this country. The seed was first sent to the Arboretum in 1878 by Mr. W. S. Clark, at that time President of the Agricultural College at Sapporo, and the largest trees raised from that seed are about sixteen feet high. They are as fastigiate in their manner of growth as a Lombardy Poplar or a fastigiate Oak, and all attempts which have been made here to induce the young plants to assume a different habit by removing the lower branches have resulted in their death, caused, apparently, by the exposure of the stems to the sun. The young trees grow, perhaps, in dense shade naturally, so that when transplanted into the open, the lower branches are essential to protect the tender bark of the stems. This, as well as the slender branches are covered with thin, red-brown bark hardly to be distinguished from that of the native Black Birch (*Betula lenta*), while those of the ultimate branchlets are dull red. The leaves appear here earlier than those of any other tree, with the exception of those of the Manchurian form of the Bird Cherry, figured upon page 295 of the first volume of Garden and Forest. They are opposite; round, or nearly so, deeply heart-shaped at the base, crenately-toothed, and, when they first appear, resemble, in color, the young leaves of the Purple Beech, with bright red stalks and conspicuous, narrow red stipules, half an inch long. They gradually lose their bronzed-red color, and later in the season are dark, rather dull, green, turning bright, clear yellow in the autumn. The flowers which have not yet been produced here are not conspicuous, and it is for its habit and its handsome foliage, so striking in the early spring, that the Cercidiphyllum will prove valuable if, upon longer trial, it is found really suited to this climate. The plants seem to flourish, and to grow most rapidly in peaty soil. The fact that it starts to grow so very early in the spring will prevent its being successfully grown in climates in which late spring frosts prevail. Here in New England, where such frosts are of rare occurrence, this tree is one which now seems to promise a good deal. It is worth, at any rate, a careful and extended trial.

May 2d, 1889. *J.*

Periodical Literature.

In *Harper's Magazine* for May, Dr. C. C. Abbott writes pleasantly and instructively of "A Meadow Mud-hole," telling how charming are the things which Nature often puts there, and how many more may easily be added by the hand of man. The greater part of his article is devoted to the Yellow Lotus (*Nelumbium luteum*) and its exotic cousin, the Rose or Sacred Lotus (*N. speciosum*). Of the former plant he tells the familiar tale—that it is native to the waters of the Western and Southern States and is occasionally found in the Middle States, but in the valley of the Delaware so rarely that it is believed to have been introduced there, probably by the Indians; but he then adds a fact less generally known. It seems that this Lotus has not succeeded with the modern cultivator, although he finds no difficulty with its foreign relative. The description given of a water-meadow in New Jersey where the Rose Lotus and many other exotic Lilies now grow in splendid masses, and the accompanying picture, indicate that he refers to Mr. Sturtevant's plantation, recently described at length in these columns. All this multitude of Lotuses, he says, have sprung from a single tuber, planted in 1881; and, he adds, a tuber set out a year ago in a "mud-hole" of his own already overshadows all the native plants in its vicinity. "For a time they are permitted to be co-occupants, but not for long. The lusty Lotus is even now reaching out to a wide stretch of marshy meadow; and there, too, I doubt not, it will flourish as at my neighbor's. It is a rightful ambition to be able to sit down beneath one's own Vine and Fig-tree. Let me add the Lotus, for it has come to stay." Selling cheaply in our city streets, too, "this famous flower of other lands must soon appear." Are not these words sufficient encouragement to the most humble of horticulturists to assist in the happy task of spreading this lovely plant? If a single tuber will so quickly develop a numerous progeny, and if a mere meadow mud-hole will serve as its home, should it not soon become as familiar an object as the white Water-lily, with which it contrasts so well? Like the Water-lily, too, it has the merit of being a persistent bloomer. "If not a joy forever, it is at least one of a protracted season. Buds or blossoms, they are alike beautiful. Among many that are pale yet distinctively tinted there often stands out one or more with the loosening petals tipped with deepest crimson. Far more are like gigantic Tea-rose buds that soon open like a Tulip, creamy-white and rosy at the tips. Often these glorious flowers measure ten inches across when fully open, and are supported by stems extending far beyond the tallest leaves. One such that I measured was more than eight feet high. When the flower is fully expanded, the huge seed-pod . . . is of the richest yellow, and surrounded by a delicate fringe of the same color. The seeds are seen imbedded in the flat, upper surface—gems in a golden setting so lavish that their own beauty is obscured."

In turning over the pages of this number of *Harper's* no flower-lover will fail to pause at those where old Andrew Marvell's beautiful "Thoughts in a Garden" are reprinted with delightful illustrations by Alfred Parsons, the well-known English landscape-painter. And to more practical minds Mr. James K. Reeve's "Agriculture as a Profession" will give food for serious thought.

Correspondence.

Opening Buds.

To the Editor of GARDEN AND FOREST:

Sir.—It is a very interesting thing to keep a record, year after year, of the dates of the appearance of flowers or leaves. When one has done so for thirty years he is able to refute some popular notions. One of these is, that the seasons are changing. If, however, we compare cycles of years, rather than contrast two contiguous seasons, we find a general level is maintained. A phenomenally early spring this year may be offset by a late one in 1890 or 1891. And, by the by, we have known earlier seasons than this, so far as the flowers are concerned. To be sure, the Houstonia opened on March 26th, but we find other things about on time. Thus: *Houstonia cærulea*, March 26th; *Potentilla Canadensis*, April 4th; *Acer dasycarpum*, March 23d; *Draba verna*, April 13th; *Hepatica triloba*, April 20th; *Nepeta Glechoma*, April 18th; Horse-chestnut, leaves appearing April 19th; *Anemone nemorosa*, April 19th; Magnolias, April 21st; *Viola sagittata*, April 23d; *Acer platanoides*, April 23d; *Caltha palustris*, April 24th; *Taraxacum Dens-leonis*, April 25th. The date for Houstonia here given is the earliest I have. Usually I have found it about the 9th to the 15th of April. The year 1865 presented some very early dates. That year I found *Anemone nemorosa* in full flower near Barrington, Rhode Island, April 15th. I especially recall the day from its sad historic interest.

I find our Horse-chestnut trees extremely variable. Why is it that a certain tree, like that in the yard of the Friends' meeting-house, leaves out a week before all others in town? I have observed the same thing with Lindens. Indeed, two standing side by side, manifest this difference. I greatly regret that in my twenty-six years of collecting, I did not keep a connected record of natural events. Such a diary is of immense use not only to one's self, but to science generally. Many, I imagine, are, under the inspiration of recent teachers, now so engaged.

Providence, R. I. *W. W. Bailey.*

To the Editor of GARDEN AND FOREST:

Sir.—The laborer in a good cause is worthy of his hire in the shape of frank acknowledgement of his services. I am glad therefore to be able to tell you that I recently heard a gentleman say: "I am just building a new house, and although there is only an acre of ground around it, my conscience was absolutely bullied by GARDEN AND FOREST into employing a landscape-gardener to lay it out for me."

Providence, R. I. *H. G. B.*

Maple Avenue Nurseries.

To the Editor of GARDEN AND FOREST:

Sir.—A ride through Chester County, Pennsylvania, is always a delightful experience, and especially so at this season, when the broad meadows which skirt its numerous streams, and the pastures on its hill-sides are mantled with the purest green, while the opening leaves of its frequent woodlands show a diversity and richness of color which even the foliage of autumn can hardly equal. Never were flowers upon early-blooming trees and shrubs more abundant. On all the wood-borders the Dog-woods are white as snow. The branches of the Judas-trees are quite hidden beneath the deep pink blossoms, and the Lilac bushes by every farm-house actually bend under the weight of their flowers. Just on the outskirts of the fine old town of West Chester are the nurseries of Hoopes Brother & Thomas, and in the border of specimen shrubs which extends for 300 yards beside a sheltering hedge every plant in bloom is apparently trying to produce more flowers than ever it did before.

A spacious and level lawn, in perfect condition, fronted by a long line of noble trees, makes an attractive entrance to these nursery-grounds. The land is not uniformly level, however, but is marked by the same diversity of surface which characterizes the county generally, and some of the elevations command prospects of great extent and remarkable beauty. The soil is fertile, easily tilled and well adapted to give a thrifty growth to young trees and shrubs, and, by a system of close evergreen hedges, they are well protected from the winds, so trying in winter to many plants which do not suffer from cold alone. It would be difficult to find anywhere in this country so great a length of such perfect hedge. The Hemlock hedge is much the most beautiful, and no conifer, when clipped to a line, can show so soft a surface. The Arbor Vitæ hedges, too, are admirable in their way—dense, uniform in color and texture, and showing no weak spot from end to end. But Mr. Josiah Hoopes considers the Norway Spruce the ideal hedge plant in this climate for practical purposes, and it is only excelled in beauty by the Hemlock. It is tenacious of life, endures the knife more patiently than any other conifer, and after long cutting, becomes almost as solid as a wall of stone and quite impervious to any ordinary assault. Mr. Hoopes has not observed that the hedges have any injurious effect upon the plants near them by robbing them of food or moisture. The young stock certainly looks well now, and in one place a block of Japan Maples, which were fairly ablaze with brilliant color, looked brighter still for the dark-green background of the hedge behind them.

It is thirty-six years since Mr. Josiah Hoopes began business here in a small way, and now the firm of Hoopes Brother & Thomas has nearly 400 acres under cultivation. Their trade is nearly all wholesale, and their aim is to keep a full line of such stock as is in demand by other nurserymen and dealers. They can hardly be said to have any specialty, although the fact that last week they set out 115,000 hardy Roses indicates an extensive business in that direction. Fruit trees, of course, occupy the greater portion of their grounds, and for some years past the sales of Norway and Sugar Maples and European Sycamore have indicated a general activity in planting street trees. This year Mr. Hoopes tells me that there has been a marked increase in the inquiry for ornamental trees and shrubs, including the choicer conifers. Some fifteen years ago Mr. Hoopes planted a Pinetum which contained all the species and varieties of conifers then obtainable, which promised to be hardy in this climate, but a large proportion of them have failed, showing how unsatisfactory it is to plant trees of this family, except those which have proved themselves sturdy and useful for special purposes. Most of the foreign Pines have yielded to attacks of fungus; the Cypresses are practically all gone, and a large proportion of the Junipers and Yews. Among the noteworthy trees that remain I remarked a *Pinus cembra* var. *Helvetica*, *P. Manchurica* and *P. peuce*, all fine specimens. Among the Spruces, *Picea pungens* and *P. Ajanensis* are making strong growth. A Spanish Fir (*Abies Pinsapo*), under the lea of a sheltering belt of trees, is in excellent condition. *A. concolor* is thrifty, and so are *A. brachyphylla*, *A. Cilicica* and *A. Nordmanniana*. Very interesting, too, is a particularly fastigiate form of the common European Silver Fir, which is well furnished from the ground up.

The most interesting group of trees I saw, however, stood in the old nursery grounds, where most of them were planted by Mr. Hoopes in 1853. Here is an Oriental Spruce, some thirty feet high, and now fairly red with its abundant male flowers. A specimen of *Abies grandis* measures nearly two feet in diameter, and near it stand fine examples of *Picea Smithiana*, *Abies Cephalonica* and many more. Near the house a tall *Magnolia Fraseri* was just opening its great flowers, which are a delicate canary color on the outside, and I wondered why it is not more frequently planted. A collection of Beeches, including large trees of the cut-leaved and fern-leaved varieties, stands near, and among them is an immense Bird Cherry (*Prunus Padus*), with a trunk nearly two feet in diameter, and its branches meet the grass in a circle forty-five feet across. It was covered completely with fragrant flowers. Of the shrubs in flower some Exochordas were noticeable for their great size, while retaining the compact habit of smaller plants. A Japanese Judas-tree, near the house of Mr. Thomas, seemed about nine feet high, and was, of course, a mass of flowers. This plant had been used several years to supply cuttings for propagation, but as soon as it was left to itself it began to shoot upward and spread outward, and is still growing rapidly. It bids fair to become almost as large as our native Cercis. Some plants of *Rhododendron Vaseyi* were bearing abundantly their clear pink flowers. *R. Rhodora* was also showing its rosy flowers, and this was in a structure some 200 feet long, with top and sides lathed, for shade-loving plants like Kalmias, hardy Ferns and many herbaceous perennials.

In a long-established nursery like this, one can find scores of beautiful things to admire; but, after all, the general tidiness, good order and organized system with which the great volume of business moves smoothly forward is the fact which most impresses the visitor. The nursery will hold an honored place in the history of American horticulture, and the writings of Mr. Josiah Hoopes in various periodicals for several years past have exercised a wholesome influence in moulding taste and directing practice in horticultural matters.

West Chester, Pa. *S.*

Recent Plant Portraits.

CHAMÆROPS HUMILIS, var. DACTYLOCARPA, *Bulletino de la R. Soc. Toscana di Orticultura*, March.

SCILLA LEDIENI, *Gartenflora*, March 15th.

CHRYSANTHEMUMS, WHITE VENUS and C. CULLINGFORDIA, *Gartenflora*, April 1st.

Notes.

An unusual number of forest fires have been raging for a week past from the Shawangunk and Catskill Mountains of this state to the woods of northern Minnesota. The fires have been exceptionally destructive in Michigan.

In the plant collection of Monsieur Beaucarne, a Belgian amateur, which was sold a few weeks ago, one of the most remarkable things was a specimen of *Vanda Lowii* which measured five feet and five inches in height.

Mr. Goldring, one of our regular London correspondents, who has been in India during several months engaged in superintending the formation of some new gardens for the Gaikwar of Baroda, has now returned to England for the summer.

An English journal speaks of *Rhododendron fragrantissimum* as one of the most attractive flowers offered this year at Easter. "Plants in eight-inch pots have bushy, spreading heads, and the point of every shoot is terminated by a cluster of large, bell-shaped, blush-white and sweetly-scented flowers."

"Chrysanthemum-Growing in America" (showing method of protecting the plants) is the title of a large illustration in a recent number of the *Garden* (London). The picture represents a corner of Mr. Gerard's garden at Elizabeth, New Jersey, although not the same one that was portrayed in these columns last autumn.

A plant of *Rhododendron Veitchianum* recently exhibited at Newcastle-on-Tyne is noted, by one of the English horticultural journals, as "one of the finest specimens of this Rhododendron ever seen. . . . It is a compact bush, is in excellent health, and furnished with upwards of 300 of its large, white flowers, which are crisped round the edges and quite five inches across."

Many of the political exiles who are wasting their lives in Siberia are men of cultivation and scientific knowledge, and one of the few industries or amusements with which they are permitted to console themselves is the formation of herbaria of local plants. In the May number of the *Century Magazine* Mr. Kennan speaks of having aided an exile whose term had expired to secure the money needed to take him back to his home by purchasing for a hundred rubles a collection which he had made.

The fourteenth annual meeting of the American Association of Nurserymen will be held in Chicago on June 5th and 6th. The programme, which we have received through the courtesy of the Secretary, Mr. Charles A. Green, shows that addresses on an unusually wide range of topics may be expected from speakers well qualified to give instruction. These meetings have proved of great value, both from an educational and from a business point of view, and the nurseryman who neglects to attend them fails to live up to his privileges.

A correspondent from Germantown writes that the woods about there, although much of their primitive character is lost, still produce many wild flowers. A collection of eighty-four kinds was gathered for the last meeting of the Germantown Horticultural Society in four hours. Of Violets alone nine species were shown. The collector of these flowers stated that the *Asplenium pinnatifidum* is quite abundant yet, in its locality along the Schuylkill, where Nuttall first found the Ferns on which he bestowed the name. It grows on rocks that are not easily reached, and hence will probably be safe from destruction for some time.

The great Tulip-bed in the centre of Union Square was not planted this year in as satisfactory a way as usual. Instead of the splendid effect of reds and yellows which has often met the eye, the dominant flower was a very dark, dull purple variety, which had neither purity nor brilliancy of tint to recommend it, and harmonized badly with the few more brightly-colored varieties that were associated with it. A Tulip-bed is nothing if not gorgeous, and it seems strange that, with so many effective sorts to choose from, this ugly one should have been so highly favored. Doubtless, however, it was an experiment which will not be repeated.

Cercis Chinensis, often cultivated in this country as *C. Japonica* and introduced here from Japan several years ago through the Flushing Nurseries, is a plant of great beauty wherever it can be successfully grown. A very fine plant, no doubt one of the relicts of the Centennial, may be seen in the neighborhood of Horticultural Hall, in Fairmount Park, Philadelphia. It is there a broad bush four or five feet high, with many erect, rather spreading, stout branches, which, last week, as the native species was just coming into bloom, were completely covered from the very base of the stems with flowers. These are considerably larger than those of the other species and of rather deeper color than the flowers of our common eastern Judas-tree. This plant is fairly hardy in the neighborhood of this city, but it only does really well in a rather milder climate. It may be seen in Washington in very great beauty. North of this city it is killed almost every winter. This Cercis is a native of northen and central China, and it is believed to have been introduced into Japan with many other Chinese plants. Seed gathered in the country of its most northern range may be expected to produce plants which will prove hardy in our northern states. The Chinese Judas-tree is said to be an important timber-tree in China, growing to a considerable height with a trunk several feet in diameter, so that it is possible that the shrub of our gardens is only a dwarf variety, produced or cherished by the Japanese, and that the typical tree is still to be introduced.

Mr. Douglas W. Freshfield recently read before the Royal Geographical Society in London an interesting paper on "The Peaks, Passes and Glaciers of the Caucasus." Few persons realize that the slopes of the central Caucasus are steeper than those of the central Alps, and that they are clothed by splendid draperies of ice and snow, amid which the freshness of the loftiest snowless slopes stands out with singular vividness. At a height of more than 13,000 feet Mr. Freshfield gathered flowers, while at 10,000 feet above the sea, near the great Mestia glacier, *Rhododendron Caucasicum* was growing in great clumps, and the grass was sprinkled with Poppies, Geraniums, Veronicas, Ranunculuses, Gentians, Forget-me-nots and Campanulas. "The steppe," says the abstract of the address printed in *The Garden*, "except in the river-beds, was treeless; but no sooner did the ground begin to rise than wild fruit-trees appeared, soon to be succeeded by dense groves. The glades were bright in summer with millions of wild Sunflowers. The flora of the basin was wonderful. A horse laden with baggage was entirely hidden by the growth of flowers; the head and shoulders of a mounted man only rose above them. Wild Sunflowers and a species like Canterbury Bells grew to a height of six feet and eight feet. There were no waterfalls, and neither lakes nor tarns. Of late years the glaciers had oscillated in a manner corresponding to the Alpine glaciers. They were all in retreat in 1868; about 1875 they began to turn, and last year were sensibly advancing. The humidity of the summer climate was at once a charm and a vexation. The atmospheric effects were beautiful and various; the sky of the northern steppe was luminous and soft; the light was the light of the east; the colors those of the Roman Campagna."

At this writing (May 7th) the great display of Tulips in the Public Garden in Boston is at its best, and surpasses that of any previous year in good taste, in the arrangement of the different varieties, in the beauty of the varieties themselves and in the individual excellency of the plants. Mr. Doogue has reason to be well satisfied. The display is specially marked by the absence of double and semi-double varieties, which are only sparingly used. They are always inferior in beauty to the single flowers. An exception may be made in favor of the semi-double Couronne d'Or, a variety with very large, bold flowers, orange streaked with red. Turban Violet, a double flower of a dirty purple, will not probably sufficiently commend itself to secure a place in the garden another season. This last is the only really bad flower in the collection. If we should venture a suggestion it would be that more of the bright scarlet and yellow-striped varieties be used in place of some of the self-colored flowers which predominate. The interest and value of the display is greatly increased by cards placed over each bed, on which the names of the varieties are handsomely printed. It is an open question whether the carpet of Pansies used to cover the ground in the Tulip beds adds to their effect or not. The Tulip is such a stately and gorgeous flower that it may lose something of its character if brought into too immediate contrast with any humbler herb. In the days when the Tulip played a greater part in the world than it does now they were planted always alone, and it would be well to contrast another year beds carpeted as they are this year with others in which the Tulip was allowed to grow alone. But nothing certainly could be more lovely in the way of a spring flower-bed than some circles thickly covered with Daisies, among which have been plunged pots of the Hoop-petticoat Narcissus, and which can be seen near the Charles Street entrance to the central walk. Large specimens of the double-flowered white and of the double-flowered scarlet Peach, completely covered with blossoms, are objects of surprising beauty.